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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,847	10/30/2003	Gordon A. Dressler	P1550	9315
7590 10/27/2005 LaRiviere, Grubman & Payne, LLP P.O. Box 3140 Monterey, CA 93942			EXAMINER COLLINS, TIMOTHY D	
			ART UNIT 3643	PAPER NUMBER

DATE MAILED: 10/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/698,847

Applicant(s)

DRESSLER, GORDON A.

Examiner

Timothy D. Collins

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3643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 5-9, 13, 14, 16, 17 and 21-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 11, 12, 15 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/24/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 5-9,13,14,16,17, and 21-40 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions and species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 9/16/05.
2. In response to applicants arguments that the inventions are not separable, the examiner maintains that the method and apparatus are separable for the reasons stated in the last action. Also with respect to the species being "embodiments of the same invention" as the applicant has stated, this is in general the definition of species. Species are related inventions under a larger genus. Therefore the examiner maintains the requirement for restriction and election and has withdrawn the claims that do not read on the elected invention. Note: because the applicant did not state which claims were readable on the invention, the examiner has chosen and withdrawn those which are not included in the invention which was chosen. For example the claims 16 and 17 do not conform to the chosen "in a free trajectory" which the examiner has taken to mean "interstellar or interplanetary travel" and therefore they have been withdrawn.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3,11,12,15,18,19, and 20 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the electrostatic ion thruster (NSTAR) used in the Deep Space 1 probe, as seen in [http://en.wikipedia.org/wiki/Electrostatic\\_ion\\_thruster](http://en.wikipedia.org/wiki/Electrostatic_ion_thruster), hereinafter called NSTAR. For proof of dates of the operation of the Deep Space 1 craft and for mission data, see "Deep Space 1" from [http://en.wikipedia.org/wiki/Deep\\_Space\\_1](http://en.wikipedia.org/wiki/Deep_Space_1).

a. Re claim 1, NSTAR discloses an ambient ion thruster with a pair of permeable electrical members as seen in the positive and negative grids. The ambient ions are the one that are in the engine to the left of the grids in the figure at the top of the page. Also as seen in NSTAR the engine is mounted to a craft, the Deep Space 1 probe. Also it is seen in the craft that the engine provides thrust through the use of the intercepted ambient ions, which are ambient to the engine and intercepted by the grids from the engine.

b. Re claim 2, NSTAR also inherently discloses that there is an insulating support connecting the thruster to the craft in that if there was not, then there would be no difference in the grid polarities and therefore no thrust. Also there is a power source in the craft because there must be an electrical supply for ion thrusters to operate.

c. Re claim 3, NSTAR also inherently discloses that there is a connection between the grids, because they are disclosed as being on the same craft and therefore at least the craft connects them, or in this case the thruster. Also

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NSTAR discloses intake mass flux, to the left of the grids and exhaust mass flux to the right of the grids.

d. Re claim 11, NSTAR discloses that the craft is in a "free trajectory" because it is on a path that is interplanetary or interstellar. This is seen in that if this were tracked forever it would be seen that it is continuing and not in an orbit around a planetoid.

e. Re claim 12, NSTAR discloses an electron bombardment ionizer in the upper right corner of the figure on the top of the reference in that the neutralizing electron gun is seen emitting electrons.

f. Re claim 15, NSTAR discloses a pair of grids as seen in the figure.

g. Re claims 18 and 19, see rejection of claim 12 above.

h. Re claim 20, NSTAR is seen through the Deep Space 1 craft as being included inside the craft.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over NSTAR as above.

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- i. Re claim 4, NSTAR may not disclose that there are 2 ion thrusters mounted to opposite sides of the craft, however the examiner takes official notice that it is old and well known in the art to place engines on the opposite sides of vehicles in a fixed relationship. This is done for the purpose of control and balance of thrust for the vehicle in the case of having 2 engines.

***Allowable Subject Matter***

- 7. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

- 8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following disclose ion thrusters.

- j. Deep Space 1, [http://en.wikipedia.org/wiki/Deep\\_Space\\_1](http://en.wikipedia.org/wiki/Deep_Space_1)
- k. <http://www.astronautix.com/craft/deepace1.htm>
- l. 6786035
- m. 3120363
- n. 3130945
- o. 6304040

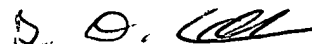
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy D. Collins whose telephone number is 571-272-

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6886. The examiner can normally be reached on M-F, 7:00-3:00, with every other Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter M. Poon can be reached on 571-272-6891. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Timothy D. Collins  
Patent Examiner  
Art Unit 3643